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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,861	09/15/2003	Stefan Matan		2128
31688	7590	01/03/2005		
TRAN & ASSOCIATES 6768 MEADOW VISTA CT. SAN JOSE, CA 95135			EXAMINER GRANT, ROBERT J	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,861

Applicant(s)

MATAN, STEFAN

Examiner

Robert Grant

Art Unit

2838

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A system and method for charging a battery using solar power and a voltage increaser.

2. The disclosure is objected to because of the following informalities: Page 1, line 1, the phrase 'generating rechargeable energy' should be changed to 'generating energy from a renewable source'. Page 7, line 5, the phrase '(transformer can work only with magnetic pole.)', should be changed to '(transformers can work only with magnetic poles.)'.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

1. Claim 6, and 7 are objected to because of the following informalities: They make claim to stepped-up voltage, which is not mentioned in the claim in which they depend upon. For examination purposes, the Examiner takes the position that the stepped-up

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voltage is the AC voltage that is generated from the AC voltage booster. Appropriate correction is required.

2. Claim 10 is objected to because of the following informalities: It is unclear if the DC regulator mentioned here is the same regulator as the one mentioned in claim 1. For examination purposes, the Examiner takes the position that the regulator in claim 10 is the regulator of claim 1. Claim 10 should be changed to say 'The charger of claim 1, further comprising of the DC regulator coupled between the voltage booster and the battery.' Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 11,13-15,17, and 19-20 are rejected under 35 U.S.C. 102(b) as being Anticipated by Gali (US 5,084,664).

As to Claim 11, Gali discloses a method for charging a battery, comprising: Receiving a direct current (DC) input voltage (Figure 2, Element 12); converting the direct current input voltage into an alternating current (AC) voltage (Figure 2, Element 26); Stepping up the AC input voltage (Figure 2, element 29);

and applying the stepped-up voltage to the battery (Figure 2, elements 42a and 42 b).

As to claim 13, which is dependent upon claim 11, the input voltage is generated by a renewable energy source (Figure 2, element 12).

As to Claim 14, which is dependent upon claim 11, the input voltage comes from a solar cell (figure 2, element 12).

As to Claim 15, which is dependent upon claim 11, wherein stepping up the input voltage further comprises proximally doubling the input voltage.

As to Claim 17, which is dependent upon claim 11, wherein the applying the stepped-up voltage further comprises converting the stepped-up voltage to a stepped-up DC voltage (Figure 2, Element 40). Gali discloses stepping-up the AC voltage, and then converting it into a DC voltage which is higher than the original DC voltage, and therefore a stepped-up DC voltage.

As to Claim 19, Gali discloses a system for charging a battery, comprising: means for converting a direct current (DC) input voltage into and alternating current (AC) voltage (Figure 2, element 26); means for stepping-up the input voltage (Element 29) and applying the stepped-up voltage to the battery (Element 42a, and 42b).

As to Claim 20, which is dependent upon 19, further comprises converting the stepped-up voltage to a stepped-up DC voltage (Figure 2, Element 40). Gali discloses stepping-up the AC voltage, and then converting it into a DC voltage,

which is higher than the original DC voltage, and therefore a stepped-up DC voltage.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gali.

Gali discloses the claimed invention except for stepping-up the input voltage further comprises proximally doubling the input voltage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the transformer to double the input voltage, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

3. Claim 1-5, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gali (US 5,084,664) on view of Curtin (US 6,469,478).

As to claim 1, Gali discloses a charger, comprising: an alternating current (AC) voltage booster coupled to an input voltage (Element 29). Gali does not expressly disclose a DC regulator coupled between the AC voltage booster and a battery. Curtin

teaches of the benefits of having a DC regulator (Column 1, lines 33-58). It would have been obvious to a person having ordinary skill in the art at the time of this invention to add Curtins regulator to Galis charger, in order to regulate the voltage going to the battery.

As to Claim 3, which is dependent upon claim 1, Gali discloses wherein the input voltage is generated by a renewable energy source (Figure 2, Element 12).

As to Claim 4, which is dependent upon claim 1, Gali discloses wherein the input voltage comes form a solar cell (Figure 2, Element 12).

As to Claim 5, which is dependent upon claim 1, Gali discloses the claimed invention except for stepping-up the input voltage further comprises proximally doubling the input voltage. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the transformer to double the input voltage, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As to Claim 7, which is dependent upon claim 1, Gali discloses further comprising a circuit to convert the stepped-up voltage to a stepped-up DC voltage (Figure 2, Element 40).

As to Claim 10, which is dependent upon claim 1, Gali in view of Curtin discloses further comprising the DC regulator coupled between the voltage booster and the battery. According to Claim 1, and the rejection of Claim 1, the voltage booster is couple to the DC regulator and the DC regulator is coupled to the battery.

4. Claims 6,8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gali in view of Curtin in further view of Maxim Integrated Products (19-4667; REV 1; 7/94).

As to Claim 6, which is dependent upon claim 1, neither Gali or Curtin expressly disclose the charger further comprising one of more capacitors for storing the stepped-up voltage before applying the stepped-up voltage to the battery. Maxim Integrated Products makes a switched-capacitor voltage converter chip, MAX1044, which are charge-pump voltage converters(page 5, lines 1-5). Charge pumps store voltage supplied in one or more capacitors. It would be obvious to a person having ordinary skill in the art to add Maxim's chip with Gali's charger, to provide an additional voltage boost.

As to Claim 8, which is dependent upon claim 1, neither Gali or Curtin expressly disclose the charger further comprising a frequency shifter to change the frequency of the AC voltage to avoid radio frequency interference. Maxim expressly discloses (page 7, column 2, lines 1-4) a frequency shifter to change a frequency of the AC voltage to avoid radio frequency interference. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the Maxim pump charger with a frequency shift function with Gali's charger in order to shift noise out of the audio band.

As to Claim 9, which is dependent upon claim 1, neither Gali nor Curtin expressly disclose wherein the voltage booster is a charge pump. Maxim Integrated Products

MAX1044 is a charge pump. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine Maxim's charge pump to Gali's charger in order to provide an additional voltage boost.

5. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gali in view of Hong (US 6,031,748).

As to Claim 2, which is dependant upon claim 1, Gali does not expressly disclose wherein the AC voltage booster is a pulse-width modulation (PWM) voltage booster. Hong teaches that using a pulse-width modulator to control a switch in order to control the voltage pulse through a transformed, and thereby control the voltage boost (Figure 2. elements T1, Q12 and 16). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate Hong's teaching with Gali's design to provide further control over the voltage boost.

As to Claim 12, which is dependant upon claim 1, Gali does not expressly disclose stepping-up the input voltage using pulse-width modulation (PWM). Hong teaches that using a pulse-width modulator to control a switch in order to control the voltage pulse through a transformed, and thereby control the voltage boost (Figure 2. elements T1, Q12 and 16). It would have been obvious to a person having ordinary skill in the art at the time of this invention to incorporate Hong's teaching with Gali's design to provide further control over the voltage boost.

6. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gali in view of Maxim Integrated Products.

As to Claim 16, which is dependent upon claim 11, Gali does not expressly disclose the charger further comprising one of more capacitors for storing the stepped-up voltage before applying the stepped-up voltage to the battery. Maxim Integrated Products makes a switched-capacitor voltage converter chip, MAX1044, which are charge-pump voltage converters(page 5, lines 1-5). Charge pumps store voltage supplied in one or more capacitors. It would be obvious to a person having ordinary skill in the art to add Maxim's chip with Gali's charger, to provide an additional voltage boost.

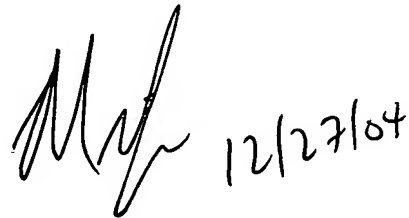
As to Claim 18, which is dependent upon claim 11, Gali does not expressly disclose the charger further comprising changing the frequency of the AC voltage to avoid radio frequency interference. Maxim expressly discloses (page 7, column 2, lines 1-4) a frequency shifter to change a frequency of the AC voltage to avoid radio frequency interference. It would have been obvious to a person having ordinary skill in the art at the time of this invention to combine the Maxim pump charger with a frequency shift function with Gali's charger in order to shift noise out of the audio band.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Grant whose telephone number is 571-272-2727. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG

Handwritten signature of Michael Sherry and the date 12/27/04.

MICHAEL SHERRY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800